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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,276	05/28/2004	John Love	CU-2882 RJS	5182
26530	7590	08/24/2005		
LADAS & PARRY LLP 224 SOUTH MICHIGAN AVENUE SUITE 1600 CHICAGO, IL 60604			EXAMINER CHIAM, DINH D	
			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,276

Applicant(s)

LOVE ET AL.

Examiner

Erin D. Chiem

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/10/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to Applicant's preliminary amendment filed on 27 March 2002. Claims 1-18 are canceled and new claims 19-30 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19-21, 23-28 rejected under 35 U.S.C. 102(b) as being anticipated by DiGiovanni et al. (US Patent 5,802,236).

DiGiovanni teaches a single mode optical waveguide fiber (Figure 4; 40) having a light guiding region that includes a central core region, a surrounding region that surrounds the central core region and at least three angularly separated side core regions 42n being disposed radially outwardly from the central core region (col. 9, lines 62-65). Please note, Figure 4 and element 42n is only exemplary, DiGiovanni discloses in further details and anticipates that the central core region may be modified such that the layers may have more than 10 or even 20 layers (col. 9, lines 65). The central core region having an average refractive index n_0 , the surrounding region having a refractive index $n_1 < n_0$, and each of the side core regions having a non-circular cross-section and having an average refractive index $n_2 > n_1$. For purpose of clarity, DiGiovanni teaches the following relationship

$$N_s = \frac{N_o + N_c}{2}$$

; wherein $N_s = n_2$ index of refraction of the side core

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; N_O = index of refraction of the inner core
; $N_C = n_1$ index of refraction of the inner clad

$$N_C < N_O$$

$$\therefore N_S > N_C$$

$$\therefore n_2 > n_1$$

The side core, as taught by DiGiovanni, comprises of silicon that is well known to be optically transparent, and from Figure 4, the side core regions has a generally arcuate cross-sectional configuration (col. 9, lines 60-65).

Regarding claim 23 and 27, the side core regions is composed of doped silica and when in the form of a fiber having a doped silica core, that incorporates the central core region and the surrounding region, and a silica cladding (col. 3, lines 35-45).

Regarding claim 26, DiGiovanni anticipated modifying the cladding features by varying the size and other relevant property provided that the fiber has a suitable effective refractive index profile (col. 5, lines 33-36).

Regarding claim 29, the side core regions are located at least in part within the silica cladding (col. 5, lines 25-35).

Regarding claim 30, it is respectfully point out that the limitation is a mere recitation of the relationship between the refractive indices, proven above.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 22 rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiovanni in view of Yamauchi et al. (US 5,689,578).

DiGiovanni teaches a single mode optical waveguide fiber (Figure 4; 40) having a light guiding region that includes a central core region, a surrounding region that surrounds the central core region and at least three angularly separated side core regions 42n being disposed radially outwardly from the central core region (col. 9, lines 62-65). Please note, Figure 4 and element 42n is only exemplary, DiGiovanni discloses in further details and anticipates that the central core region may be modified such that the layers may have more than 10 or even 20 layers (col. 9, lines 65). The central core region having an average refractive index n_0 , the surrounding region having a refractive index $n_1 < n_0$, and each of the side core regions having a non-circular cross-section and having an average refractive index $n_2 > n_1$.

However, DiGiovanni does not teach the side core regions have a generally rectangular cross-sectional configuration.

Yamauchi teaches a single mode optical waveguide having side core regions has a generally rectangular cross-sectional configuration in Figure 1a for the purpose of using the optical fiber in applications that cannot accommodate a wide diameter fiber.

Since DiGiovanni and Yamauchi are both from the same field of endeavor, the purpose disclosed by Yamauchi would have been recognized in the pertinent art of DiGiovanni.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to replace the arcuate rod, which forms the core with a rectangular core

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rod. The motivation for employing a rectangular cross section core is to provide flexibility in application that cannot accommodate wide diameter fibers, in which the shorter sides of the rectangular core can accommodate. Furthermore, as will be appreciated by a person having ordinary skill in the art that rectangular core fiber is easier to use in optically integrated substrates.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800